Studies in Continuing Education

ISSN: 0158-037X (Print) 1470-126X (Online) Journal homepage: http://www.tandfonline.com/loi/csce20

Facilitating social learning in teacher education: a case study

Emmy Vrieling, Antoine van den Beemt & Maarten de Laat

To cite this article: Emmy Vrieling, Antoine van den Beemt & Maarten de Laat (2018): Facilitating social learning in teacher education: a case study, Studies in Continuing Education, DOI: 10.1080/0158037X.2018.1466779

To link to this article: https://doi.org/10.1080/0158037X.2018.1466779

STUDIES IN CONTINUING EDUCATION, 2018
https://doi.org/10.1080/0158037X.2018.1466779

Routledge
Taylor & Francis Group

Facilitating social learning in teacher education: a case study

Emmy Vrieling[a], Antoine van den Beemt[b] and Maarten de Laat[a,c]

[a]Welten Institute, Open University, Heerlen, Netherlands; [b]Eindhoven School of Education, Eindhoven University, Eindhoven, Netherlands; [c]Learning, Teaching & Curriculum, University of Wollongong, Wollongong, Australia

ABSTRACT

It is increasingly recognised that social learning by teachers can stimulate professional development. In this study, we search for the social behaviour patterns which can act as a catalyst for professional development, with an explicit focus on student teachers' learning. Based on the 'Dimensions of Social Learning (DSL) Framework', including 4 dimensions and 11 indicators of social learning, the present study explores the social configuration of one network of primary teachers ($n = 12$), student teachers ($n = 12$) and teacher educators ($n = 2$). Two research questions guide this exploration: (1) What patterns of social behaviour in teacher networks are likely to lead to professional learning? (2) What network facilitation guidelines can be discerned to assist teachers and teacher educators wishing to optimise student teachers' professional development? Data collection consisted of video recordings, reflective notes and semi-structured interviews with network members. The findings paint a picture of how social learning in teacher networks is related to the group's social configuration. Observation criteria and student facilitation guidelines are suggested to support professional development within teacher networks. For each dimension in the DSL Framework, one point of attention is discerned to optimise students' learning in teacher networks.

ARTICLE HISTORY
Received 19 December 2016
Accepted 14 April 2018

KEYWORDS
Collaborative learning; professional development; social learning; teacher networks

1. Introduction

Participating in networks for social learning and knowledge sharing has become an important part of lifelong professional development for teachers and other professionals alike. Teachers develop relationships within and outside schools that help them learn, solve problems and innovate (Haythornthwaite and De Laat 2012). Access to the networks resulting from these relationships supports teachers to deal with the increasing complexity of their work. Overall, research shows the importance of understanding the role and impact of social learning on teacher professional development (Darling-Hammond et al. 2009).

This paper describes a case study of primary teachers, student teachers and teacher educators collaborating in a network designed to increase learning opportunities beyond classroom walls. In this case study, we emphasise the potential for professional

CONTACT Emmy Vrieling emmy.vrieling@ou.nl

development of student teachers in networks and we look for ways to facilitate (student) teachers' learning. Conceptually, we take a practice-driven perspective on teacher social learning: 'learning activities by teachers in collaboration with colleagues, resulting in a change in cognition and/or behaviour at the individual and/or group level' (Doppenberg, Bakx, and Den Brok 2012, 548–549). This definition suggests that social learning could include sharing problems and insights in beneficial ways, connecting experience with familiar concepts, and collaboratively constructing new knowledge through dialogue and social interaction (Wenger, Trayner and De Laat, 2011). It thus enables exchanging ideas or experiences, as well as developing and discussing new responses and giving feedback (Doppenberg, Den Brok, and Bakx 2013).

The case study follows a literature review by the present authors that identified the broad commonalities ('dimensions') and associated characteristics ('indicators') of social learning in teacher networks (Vrieling, Van den Beemt and de Laat, 2016). That review resulted in a theoretical framework, the Dimensions of Social Learning (DSL), which synthesised theories and concepts from previous empirical research in the domain of social learning by teachers. That study was, to our knowledge, the first effort to create a framework by integrating aspects of teams, communities of practice and networks with the purpose of understanding aspects of social learning in both offline and online environments. Existing frameworks, such as the Community of Inquiry Framework (Garrison, Anderson, and Archer 2000) or the Community Indicators Framework (Galley, Conole, and Alevizou 2012) focus on online communities and communication, rather than teacher networks.

The dimensions suggested in the DSL Framework (see also Section 1.2) serve as a lens to observe the social configuration of teacher networks. The corresponding indicators measure the extent to which the group shows specific attitudes and social behaviour. In this way, the framework gives a description or snapshot of the group's social learning at a certain point in time. The present case study aims to translate the dimensions and indicators of the DSL Framework into descriptions that can be applied in practice. Thus, this study intends to illustrate how the DSL Framework can be used to analyse how patterns of social behaviour in networks enable professional learning. To pursue this, we collaborated with teachers in practice, observed teacher network meetings, interviewed participants and asked them to reflect on their learning process.

The result is a set of observation criteria to analyse the social configuration of teacher networks. Because facilitating networks is seen as fundamental for social learning in those networks (Hanraets, Hulsebosch and De Laat, 2011), we also looked for guidelines which would assist facilitators to optimise the professional development of network participants.

1.1. Social learning in teacher networks

Social learning is increasingly considered a powerful way to stimulate and facilitate teachers' professional development in educational settings (Lieberman and Wood 2003). In social learning, teachers interact with peers, students, information and resources by considering authentic problems (Laferrière, Lamon, and Chan 2006). Through engaging in social learning, teachers can gain specific and concrete ideas that can be directly related to their own classroom practice (Guskey 2002). Social learning can thus be seen as social action evolving around relationships (ties). Social networks, as collections of ties, enable both collaborative and individual learning and knowledge sharing (Schreurs et al., 2014).

Traditionally, most teachers carry out their work individually in their own classroom settings (Doppenberg, Bakx, and Den Brok 2012), which makes the integration of social learning in schools a difficult manoeuvre (Vangrieken et al. 2014). Another complicating factor is that teacher networks are often discipline-specific and their ties strongly localised (Pataraia et al. 2014). Therefore, network participants are less exposed to new ideas and less likely to integrate responses created elsewhere (Pataraia et al. 2014). As a consequence, social learning in teacher networks requires attention to participants' gradual development with sufficient guidance (Wenger 1998). To achieve an ideal learning situation, group facilitators, who can be seen as experts, gradually decrease assistance once the participants are able to perform more independently (De Laat, Vrieling and Van den Beemt 2016). Only if the group's process is successfully facilitated can social learning in teacher networks result in innovation (Büchel and Raub 2002).

1.2. The DSL framework

Teacher networks are potentially valuable sites of professional development. The DSL Framework can assist teacher networks by serving as a lens to observe group activities from a learning perspective. In this way, patterns in the learning behaviour of groups in relation to their learning goals can be analysed. Moreover, based on this analysis, group members can reflect on how their social configuration aligns with the groups' purpose and learning goals (Van de Beemt, Ketelaar, Diepstraten, and De Laat, 2018).

The framework is based on four dimensions (see Appendix 1, column 1): (1) practice, (2) domain and value creation, (3) collective identity and (4) organisation, each with corresponding indicators (see Appendix 1, column 2). These indicators measure the extent to which the group shows specific attitudes and behaviour, thus serving as the foundation for understanding social learning in practice.

The first dimension, *Practice*, indicates the necessity for a relationship between the knowledge created and shared in the group, and teachers' day-to-day activities (Agterberg et al. 2010). This dimension encompasses two indicators: (1) 'Integrated or non-integrated activities', representing the extent to which group knowledge and activities are integrated in their practice and (2) 'Temporary or permanent activities', which describes the duration or sustainability of learning activities (Pedder and Opfer 2013).

Domain and value creation, the second dimension, describes the sharing of experience and expertise among group members. Key indicators are: (1) 'Sharing or broadening/deepening knowledge and skills', reflecting the extent to which members of the group, through dialogue, share their domains of practice to develop collective knowledge and skills and (2) 'Individual or collective value creation', which describes the level to which new knowledge is created through network interactions, as indicated by group ownership, mutual inspiration or positive interdependence (Schreurs et al., 2014).

The third dimension, *Collective Identity*, is demonstrated when group members work interdependently with a shared purpose and responsibility for collective success. This dimension can be characterised by: (1) 'Shared or unshared identity', which is related to group history and social and cultural background; (2) 'Strong or weak ties', which reflects the sense and intensity of general contact among group members and (3) The extent to which group members perceive each other as 'task executors or knowledge workers'.

The final dimension, *Organisation*, registers how the group is organised. Teacher network organisation can be indicated by: (1) The extent to which the group shows 'Directed or self-organized learning'; (2) The focus on 'local or global activities'; (3) The presence of 'hierarchic or equal relationships' and (4) The extent to which the group exhibits a shared interactional repertoire, reflected in 'shared or non-shared interactional norms' (Barak, Gidron, and Turniansky 2010).

1.3. Problem definition

The way social networks learn is difficult to describe. The foci and dynamics of networks are influenced by the contexts and cultures in which they exist. A crucial question is how social configurations influence the way teachers learn from each other. In addition, we seek an understanding of how best to facilitate teacher networks to help student teachers develop and meet their learning goals/aspirations. The preparation of student teachers for their social role as learning professionals in schools is weakly conceptualised in teacher education curricula (Dobber 2011). It is therefore relevant to consider ways in which teacher educators can prepare student teachers for successful participation in teacher networks as part of the continued professional development in practice. Our exploration of the social configurations of teacher networks was guided by the following research questions:

- What patterns of social behaviour in teacher networks are likely to lead to professional learning?
- What network facilitation guidelines can be discerned to assist teachers and teacher educators wishing to optimise student teachers' professional development?

2. Methodology

2.1. Setting and participants

Between September 2013 and June 2014 a rich case study of an explorative and qualitative nature (Creswell 2007) was conducted in a college of primary teacher education. This was an independent institution of approximately 500 students per academic year, predominantly destined for schools in a rural area in the east of the Netherlands. Most students enter its programme after graduating from senior general secondary education or the highest level of senior secondary vocational education.

A network consisting of primary school teachers ($n = 12$, hereinafter referred to as 'teachers') from 10 different schools, student teachers in their third and fourth year ($n = 12$, hereinafter referred to as 'students') and teacher educators ($n = 2$, hereinafter referred to as 'educators') was observed over 7 meetings. The network's objective was to improve language learning and teaching within the participating schools. The educators as well as two teachers had been involved from the very start of the group (September 2012), while the others joined later, in September 2013. The seven meetings during the research period had the following purpose: discussion of the group's goals and the participants' roles (meeting 1); designing a language course (meetings 2, 3 and 4); evaluating and redesigning the language course (meetings 5, 6 and 7). In between meetings, teachers and students piloted the designed course in practice.

All educators and teachers participated voluntarily. For the student group, participation was compulsory. The teachers in their workplace schools as well as the educators within the institute guided the students with the purpose of narrowing the gap between the educational institute ('theory') and the primary schools ('practice') by designing, experiencing and experimenting with new approaches to teaching.

2.2. Data collection

In any case study, researchers include whatever information is necessary to fully understand and describe the case in context (Stake 2005). To gain an understanding of the social learning processes in the network, all meetings ($n = 7$) were videotaped. Furthermore, in-depth retrospective semi-structured interviews were conducted with two students, two educators and two teachers ($n = 6$). The participants were randomly selected and participated voluntarily. Because of multiple interviewers, interview guidelines were developed to optimise inter-interviewer consistency. A biographical approach (Bornat 2008) was used, with participants asked to recount the social processes from the time of the first recorded network meeting to the network's situation at the conclusion of the observations. Biographical interviews ask respondents to look back over a period of time and to narrate experiences related to a certain topic, in this case, dynamics and development within the network. Themes included the respondents' first participation in the network, their subsequent pathways of participation and how they experienced relationships with other network members. The interviews were held directly after the final group meeting. Each interview was audio recorded. Appendix 1 (column 3) presents sample interview questions.

To gain insight into the value of the network learning activities for students, students were asked to kept reflective notes of their experience, which were gathered after each group meeting. Reflective notes (Honold 2006) are written accounts of personal reflections following a predetermined activity in the respondent's practice. Reflective notes collected immediately after an activity can serve as a tool for monitoring individual developments in skills, knowledge and attitude. Students answered the following reflection questions: (1) What do you consider the most valuable learning outcome of this meeting? (2) Which part of this meeting do you consider excellent and for what reason? (3) Which part of this meeting would you like to adjust and for what reason?

2.3. Data analysis

The collected empirical data from the video recordings, interviews and reflective notes were analysed and triangulated to enhance the internal validity of the findings (Miles and Huberman 1994). The analysis was guided by the DSL Framework, which was used to understand how the social configurations of the network related to the network's learning activities. All findings were structured in a matrix containing the 4 dimensions and the 11 indicators of the DSL Framework. For each indicator in the framework, two researchers independently first analysed the data from all sources using qualitative content analysis (Patton 2015). Second, similarities and differences in the views of the two researchers were discussed. Finally, the results of the analysis were synthesised, and the observation criteria that researchers used to create the image of the network were documented for

each indicator of social learning. The analysis was also used to inform the student facilitation guidelines.

3. Findings

In answer to *research question 1*, our findings showing which patterns of social behaviour enable professional learning are presented according to the dimensions and indicators of the DSL Framework. Quotes from the data illustrate the findings. Observation criteria were derived from these findings: see Appendix 1, column 4 for a complete list. In response to *research question 2*, we elaborate on guidelines to optimise students' professional development in a network with teachers and educators. These guidelines are presented in the findings for each indicator and summarised as 'student facilitation guidelines' in Appendix 1, column 5.

3.1. Dimension 1: practice

3.1.1. Integrated or non-integrated activities

In line with earlier research findings (Agterberg et al. 2010; Hanraets et al. 2011), all group members emphasised the importance of integrating group knowledge and activities into everyday practice. For teachers as well as students, it is therefore evident that group activities which have immediate relevance for their own teaching practice are more likely to result in professional application. The group that we followed, developed didactic tools (guidelines, lessons, instructional movies, assessment models) for teachers to guide primary school pupils in their writing skills. The following quote illustrates how a group member transformed experiences into resources to be applied in classroom practice:

> Teacher: For me it is important that the meetings are practical. For example, during the last meeting we made a movie to be used in classroom practice and I really enjoyed that. In response, I did the same with my students and I learned a lot from them.

Where the meetings provided useful resources but no agreements were made about how the group products would be used, the integration of the activities into classroom practice was less likely. We observed that the experiences in classroom practice were only occasionally communicated during meetings. The following quote illustrates a noncommittal attitude concerning the integration of group products:

> Teacher: After a group meeting, I didn't leave with the feeling: 'I am going to do this' (i.e. integrate the products in my school).

For some students, the group activities matched their assignments as received from the teacher-training course. This match was enhanced through student presentations during group meetings. Making sure students had finished their working plan before the start of the group meetings also appeared important. In those circumstances, the group products were integrated in classroom practice.

Other students experienced a mismatch between assignments and group activities:

> Student: The learning materials we're developing don't seem to be connected to students' activities.

Based on the findings, two observation criteria were found illustrative for the indicator '*Integrated or non-integrated activities*': (1) Agreements about testing group products in classroom practice and (2) Communication about experiences with group products. The results led us to discern two facilitation guidelines that contribute to optimising students' professional growth in a group: (1) Presentation of assignments during group meetings and (2) Completion of a working plan before the start of the group meetings.

3.1.2. Temporarily or permanent activities

In his enthusiasm to develop activities and products, one of the group facilitators inspired people to do a lot of reading, look after publication channels and discuss work-related topics. He also encouraged the group to describe both long-term (three years) and short-term (one year) goals. In this surrounding, several group members that had been involved from the start demonstrated a rather permanent social learning attitude towards the group's objective:

> Teacher: Within school we first focused on teaching reading for a few years, followed by reading comprehension. At this moment, in line with the network ideas, language education is on our agenda. This year it is our aim to implement the network products within a few classes. Next year we expect to keep connected to the network to be able to implement the products and ideas in all classes.

Teachers and students that participated in another group were mainly focussed on temporary learning activities, i.e. finishing their assignments. Their attitude was more product-centred (short-term) instead of process-centred (long-term) and was aimed at getting something immediately out of the group. They especially valued feedback opportunities for direct improvement of their work:

> Student: For me it is important that I can communicate my ideas in the group and that I receive useful feedback on my ideas to be able to finish my assignment in time.

Moreover, students were not aware of the importance of social competence development as a long-term goal:

> Educator: It is a missed opportunity that we didn't point out to students the added value of networked learning for working on their social competencies. Students are privileged to join teacher networks because it provides the opportunity to really practice learning with colleagues. Moreover, they can describe social learning experiences in their portfolio.

Based on the findings, two observation criteria were found illustrative for the indicator '*Temporarily or permanent activities*': (1) Description of short and long-term goals and (2) Clarification of the relationship between group goals and activities. To optimise students' professional learning in a group, one facilitation guideline was discerned: Raising awareness of the importance of social learning for the development of social competencies.

3.2. Dimension 2: domain and value creation

3.2.1. Sharing or broadening/deepening knowledge and skills

To develop collective knowledge and skills through dialogue it was common to work in small groups where group products were discussed and feedback provided. Furthermore, during group meetings, students gave short presentations on their progress and were

obliged to describe the adjustments made to their work after receiving feedback. In the following quote the level of 'knowledge sharing' (Agterberg et al. 2010) was demonstrated, with experience and expertise shared among group members leading to the creation of new knowledge:

> Teacher: It is pleasurable to collaborate with students: they have time and opportunities to deepen their knowledge of our group theme, and their output becomes input for our school. In this way, innovation is achieved.

However, the group's intention to deepen the meetings through studying articles in advance did not work out. The participating teachers were not offered support or facilitation for group activities and could therefore not be obliged to invest extra time besides joining the group meetings. A learning management system (LMS) was created in an attempt to support open participatory and productive practices, such as peer critiquing, sharing, user-generated content, aggregation and personalisation. However, the LMS was only used for collecting content instead of discussing and reflecting (i.e. broadening/deepening the learning process). The quote below illustrates the teachers' response to the LMS as an unnatural environment:

> Teacher: Working in the LMS should not be obligatory. For primary teachers it's a side issue.

Based on the findings, four observation criteria were found illustrative for the indicator '*Sharing or broadening/deepening knowledge and skills*': (1) Discussion about the group products, (2) Feedback opportunities, (3) Adjustments of the group products after discussion or feedback and (4) Time investment of all members.

3.2.2. Individual or collective value creation

Individual or collective value creation refers to the level to which new knowledge is created through network interactions, as indicated by group ownership, mutual inspiration or positive interdependence. At the start, the group selected and agreed upon a central theme. However, during the course of the year, it appeared difficult to hold on to this theme, and participating group members strived for individual instead of common goals:

> Student: At the moment, the group members are striving for their own individual goals. But with a common goal as a group, I think we could see greater development.

In response, the group facilitators arranged a meeting aimed at achieving more alignment. However, due to the variety in experiences among group members, collective group learning driven by shared interest or (knowledge) domain (Wenger 1998) did not occur. The shared interest or domain for each individual did not develop into a collective basis for a 'deep level similarity' among group members (Van Emmerik et al. 2011). No shared goals were developed and the collective goals were not reflected upon. In summary, the group was not able to create shared knowledge. As a result, the group was unable to agree on a shared group product and fell apart into different sub-groups. These sub-groups collected and finalised their group products separately onto DVD.

Based on the findings two observation criteria were found illustrative for the indicator '*Individual or collective value creation*': (1) Shared agenda at the start and (2) Shared agenda during the course of the social learning cycle.

3.3. Dimension 3: collective identity

3.3.1. Shared or unshared identity

Only the educators and the teachers who participated from the very start of the group shared a common history and purpose. The students and most of their guiding teachers had the goal to finish students' assignments resulting in new products or ideas for their individual schools. The facilitators encouraged the group to discuss the relevance of their specific needs and objectives and engaged individual group members in conversations. Participants were also placed in small groups to exchange information and stories and to search for specific ideas. They also provided mutual assistance and feedback when people asked for help. Nevertheless, the group members had neither a sense of belonging, nor a sense of responsibility for group processes. As a result, the hoped-for open exchange of ideas and opinions and feelings of shared responsibility did not occur and no meetings other than the scheduled group meetings were attended. The following student quote illustrates this unshared identity:

> Student: A group goal would have helped. We worked mainly on our own school goals. It's a pity, I would like to have learned from other schools; like inter-vision.

Based on the findings, three observation criteria were found illustrative for the indicator '*Shared or unshared identity*': (1) Group activities to enhance the shared identity; (2) Feeling of belonging to the group and (3) Contact between the group members outside group meetings.

3.3.2. Strong or weak ties

The indicator 'Strong or weak ties' reflects the intensity of general contact among group members. All group members sensed a strong connection with the group facilitators (educators) who in turn sensed close relationships with students and teachers. Some members showed real engagement by attending all meetings and actively participating in conversations and discussions. These strong ties are illustrated by the following quote:

> Educator: I feel strongly connected to the students and teachers who work pro-actively on their working assignments and actively participate in the meetings of the group: the critical thinkers.

The relationships between the group members of the same school (students and teachers) were strong. These strong ties can be characterised as localised, proximal, frequent and reciprocal, which made participants experience a strong inward focus that enhanced deeper knowledge within schools. In between schools, relationships were shown weak and analysed as distant, infrequent and not reciprocal. Interaction was kept to a minimum outside of group meetings as shown in the following quote:

> Teacher: All members arrived in a hurry and there was no time for informal contacts in between schools. I sometimes chatted with colleagues from other schools in between activities, but no more than that. Sometimes we saw each other at other occasions related to school.

One of the group facilitators demonstrated an innovative and outward focus (Hanraets et al. 2011). He sought out people from a variety of practice-based and scientific institutions to inspire the group. Such an external view requires weak ties outside of the group and is valued for professional development (Carmichael et al. 2006).

Based on the findings four observation criteria were found illustrative for the indicator '*Strong or weak ties*': (1) Frequent interaction between the group members, (2) Proximal relationships between the group members, (3) Reciprocal relationships between the group members and (4) Outward focus of the group members.

3.3.3. Task executors or knowledge workers

In line with the indicator 'temporarily or permanent activities' (Section 3.1.2) the teachers (and to an even greater extent the educators) who participated from the very start of the group demonstrated a long-term and expansive attitude towards learning. They not only worked on their tasks, they also shared knowledge within the group in the form of new rules, routines, strategies, best practices, implementation experiences, etc. This attitude enabled the group to develop a perspective which focused on continuous learning. Although the opportunities for such a perspective were present, a knowledge-driven attitude did not evolve among the students and starting teachers. A first cause for the lack of a knowledge-driven focus in the group was found in the fact that the students and starting teachers were motivated by individual instead of collective value creation (see also Section 3.2.2), i.e. finishing the learning goals for the benefit of their individual schools. This difference was described by one of the long-term teachers:

> Teacher: The learning attitude differs between 'old' (i.e. participation from the very start of the group) and 'new' (i.e. participation from this year on) group members.

Second, it was observed that most of the newer group members saw their participation in the group as obligatory but the long-term members as voluntary:

> Teacher: Although not facilitated, participating in this group felt voluntary. I attended all meetings, even on my day off, because the group products are useful. I really want to remain part of this group the coming years to further extend my expertise.

Based on the findings two observation criteria were found illustrative for the indicator '*Task executors or knowledge workers*': (1) Long-term learning attitude and (2) Voluntary participation.

3.4. Dimension 4: organisation

3.4.1. Directed or self-organised learning activities

The educators directed the group during the meetings. They made agendas and notes, collected and spread information, and took care of the LMS. One of them was also the content expert of the group. In line with Hanraets et al. (2011), the group members discerned different roles of the facilitators that were important, especially during the start-up phase of the group: information source, inspirer, guide, public relations manager and investigator. In general, the participants were satisfied with the facilitators' work:

> Teacher: Our chairman sticks to appointments; in this way no precious time for communication is lost.

Although the group did not aim at developing better processes of organisation, it appeared crucial for the facilitators to make some changes to achieve a meaningful, shared context within the group:

> Teacher: Sometimes we had the feeling that only the group facilitators had a good picture of the aims of the group and we were the executors of the assignments.

Therefore, the group elaborated on two fundamental questions, representing respectively the domain (meaningful activity) and the identity (shared activity) of the group: (1) 'How are we relevant to each other?' and (2) 'Who are we and where we are going?' (Akkerman, Petter and De Laat 2008). After the intervention, students and teachers were more involved in the preparation of sessions. However, leadership activities were not taken up by the group and people did not divide the responsibilities, delivering an image of the group as being externally directed rather than self-organised.

In line with research in the field of self-regulated learning (Vrieling, Stijnen and Bastiaens 2017), it became obvious that students in networks must be coached intensively in their use of metacognitive skills. Students were, for example, encouraged to ask for and to provide feedback, however they were not well versed in the skills needed for its performance:

> Educator: Students had the opportunity to pitch their work and ask for feedback in the network. Some students made use of this opportunity; others did not. For me, this is a learning point. We should embed skills like feedback in a more structured way in our network and use criteria.

Based on the findings, two observation criteria were found illustrative for the indicator '*Directed or self-organized learning activities*': (1) Dispersed leadership and (2) Divided roles. To optimise students' professional learning in a group, one facilitation guideline was discerned: Modelling of metacognitive skills.

3.4.2. Local or global activities

The group displayed an inward focus towards local activities within their own schools. No general themes were discussed. Only one of the group facilitators was more globally oriented and proactively sought for cooperation partners and publication opportunities for knowledge sharing. Overall, the group engaged with local activities, rather than global:

> Teacher: Our group products are applied within and between the schools involved.

Based on the findings two observation criteria were found illustrative for the indicator '*Local or global activities*': (1) Inward focus towards local activities and (2) Orientation towards external knowledge sharing.

3.4.3. Hierarchic or equal relationships

Because of the diversity of the group members, there were different levels of expertise. During the first semester meetings, this resulted in a learning climate where some group members were observed as dominant in their behaviour. As a consequence, the discussion took place in a climate within the group meetings that did not feel safe for all members. This was especially true for the students. No group activities were executed to enhance equality between the group members.

In the second semester meetings when the group composition had altered (a few expert members decided to leave the group) the group participants generally viewed each other as equal and were appreciative of the input of others. In the group meetings, students and teachers often interacted in small groups where no hierarchical structures were observed:

> Teacher: All members were equal. That went all right. Students possess other qualities than teachers, for example technology knowledge. That is really nice because we complement each other when working on our goals.

However, some students only felt confident in conversations with the group members from their own schools:

> Student: Because the teachers of my own school are more familiar to me, I feel more confident talking with them.

In addition, students remarked that their assignments were judged by one of the educators; a possible complicating factor when equal relationships are strived for.

Based on the findings, two observation criteria were found illustrative for the indicator '*Hierarchic or equal relationships*: (1) Sense of equality between the group members and (2) Group activities to enhance equality. To optimise students' development in a group, one facilitation guideline was discerned: Provide a method of enhancing objectivity when students are guided and judged by the same person.

3.4.4. Shared or non-shared interactional norms

Although opportunities were provided to discuss relevant themes within the group, some participants, especially students, did not always feel confident to freely add to group discussions, ask questions or ask for feedback. This was related to the group size of 25 members, as well as the lack of collective identity (see Section 3.3.1). Moreover, communication procedures were not discussed within the group. As a consequence, group members did not get the chance to practise important communication skills such as being open to different opinions. However, to meet the expectations of participants, the group facilitators did organise opportunities for discussion and interaction in small groups during the second-semester meetings. In these meetings, the different perceptions of the group members were openly discussed:

> Student: For me the most valuable part of the meetings is when we interact with colleagues in small groups.

Based on the findings, three observation criteria were found illustrative for the indicator '*Shared or non-shared interactional norms*': (1) Communication about the procedures to achieve shared goals, (2) Feeling of safety to interact within the group and (3) Openness to different perceptions within the group.

4. Discussion

To understand social learning in teacher networks in practice, the present study used the DSL Framework (Vrieling, Van den Beemt and de Laat 2016). The DSL Framework distinguishes 4 dimensions and 11 corresponding indicators and was built upon notions of team learning, community learning and networked learning. Our findings show that the types and quality of learning activities in teacher networks are associated with the group's social configurations. These configurations were analysed by the extent to which the group behaviour showed the dimensions of practice, domain and value creation, collective identity, and organisation. The indicators of the DSL Framework were further concretised into 'DSL Observation Criteria' (see Appendix 1) that can be used to gain

insight into social learning activities, enabling teacher network members to become more aware of their potential value for future development. The findings also demonstrate the importance of explicit attention to students' professional development in teacher networks. In the following sections, we discuss the implications for facilitating teacher networks that can be drawn from our case study.

4.1. Implications for the dimension 'practice'

The dimension 'practice' describes the relationship between knowledge created and shared in the group, and teachers' day-to-day activities. In our case, resources created by the group and experiments with these group products in class illustrated this creation and sharing. To ensure active engagement with group products, the group's agenda should list two items that are grounded on the group's goals: (1) Experiences with group products in classroom practice and (2) Necessary amendments to group products, based on these experiences. These two items facilitate engagement by ensuring integration in day-to-day activities (Pedder and Opfer 2013). Through creating awareness among students of the importance of social learning for developing competencies, the product-oriented learning approach of students might gradually develop towards a more process-oriented learning approach, which is necessary for long-term learning.

4.2. Implications for the dimension 'domain and value creation'

The dimension 'domain and value creation' refers to the creation of new knowledge through the sharing of experience and expertise among group members. Based on our case, group facilitators are advised to create opportunities for participants to listen to the perspectives of others and engage in dialogues. In this way, new views can be examined and potentially alter old views. These dialogues, often enforced by questions of novices (Barak, Gidron, and Turniansky 2010; Leh, Kouba, and Davis 2005) can lead to reframing: a process of transforming existing perceptions into a new understanding or frame, possibly resulting in the broadening or deepening of knowledge and practice. As a result, the group integrates these views into a new, collectively held, mental construct. Working this way enhances a continuous learning mode.

To inspire all group members to actively participate in group activities, a shared vision is necessary. Only members who share an agenda with peers create real learning opportunities and professional growth. A possible way to achieve a shared approach is for group members to perform collaborative research and consequently generate shared knowledge (Barak, Gidron, and Turniansky 2010). This collaboration and sharing requires facilitation of reciprocity as a prerequisite for value creation (Schreurs et al. 2014). In this process, attention is necessary to achieve a balance between individual accountability and positive interdependence linked to group goals (Hornby 2009).

4.3. Implications for the dimension 'collective identity'

Groups whose members work interdependently with a shared purpose and responsibility for collective success show 'Collective identity'. We advise groups that aim to stimulate a shared identity to discuss who they are and how they can be important for each

other. This discourages hierarchical structures that can hinder spontaneous learning. For instance, storytelling and scanning (Meirink et al. 2010) can create a feeling of belonging to the group. For teacher networks to function and have longevity, it is important that participants are facilitated to show responsibility. Responsibility for group activities can be demonstrated by integrating different perspectives, and by ensuring the interwoven-ness of individual tasks (Doppenberg, Bakx, and Den Brok 2012) through 'aid and assistance' that allows colleagues to observe each other's teaching practices, 'sharing' or exchanging instructional materials, methods, ideas and opinions, and 'joint work' in which teachers sense a collective responsibility for their teaching (Meirink et al. 2010). To create a feeling of belonging to the group, facilitators should also consider their size. For larger teacher groups as was the case in our study, it is difficult to sustain the feeling of group identity, because members are more likely to argument and compete (Wheelan 2009). Finally, analysing and fostering the structure of connections among people can support long-lasting social relationships. In such teacher networks, questions concerning content, direction, and strength of these interactions can be elaborated.

4.4. Implication for the dimension 'organization'

Self-organised learning, as an indicator of the dimension 'Organization' can be facilitated by the distribution of leadership activities among multiple people (Haythornthwaite and De Laat 2012). This establishes a learning situation where the participants can flourish and self-regulate. However, facilitation should focus on a gradual increase of self-regulation in teacher networks to ensure sufficient networking knowledge and skills (Vrieling, Stijnen and Bastianens 2017) and a balance between individual and group goals (Barak, Gidron, and Turniansky 2010).

Although teachers often act locally, it is fruitful for teacher networks to share their knowledge and expertise beyond this. In this way, small and local teacher networks can be cultivated towards an interest in more global-oriented groups. Successful groups with a global orientation draw people together from disparate contexts around shared challenges, yet also sustain the ability to stay close to the local needs of their members.

For student facilitation in networks, our findings deduced two propositions: (1) Modelling of metacognitive skills; (2) Provide a method of enhancing objectivity when students are guided and judged by the same person. Concerning the first proposition, students will benefit from social learning opportunities in networks if they have sufficient guidance from experts. Collaborating in teacher networks as an integral part of teacher education curricula can provide models for students through which they can learn the practice of working in groups.

4.5. Overall implications for student learning

In sum, the findings show that although it is a condition for successful social learning, achieving a shared domain and identity for all participants is difficult. Unless goals are clearly stated and agreed upon, teacher networks can easily lose energy and underperform. Four points of attention for student learning in teacher networks can be discerned, one for each dimension in the DSL framework:

(1) engagement: create a link between the group activities and student assignments (practice);
(2) reciprocity: ask students what they want to get out of the community, and provide sufficient communication opportunities (domain and value creation);
(3) responsibility: set up short social activities before moving on to 'working' activities (identity);
(4) balance: gradually assign social and facilitating roles until goal-supporting roles emerge naturally (organisation).

5. Conclusion

This study explored a translation of the DSL Framework into practice, with the purpose of enhancing teacher network facilitation. In cooperation with practitioners, we monitored a case study through observations, interviews and reflections. The study resulted in 'DSL Observation Criteria' that can be applied to analyse the social configurations of teacher networks. In addition, the presence of students in the teacher network created a specific focus that resulted in additional student facilitation guidelines. The observation criteria and the accompanying guidelines can support both social learning activities of teachers and their professional development.

For each indicator of the four DSL, observation criteria were formulated. These criteria are designed to support teacher networks. By analysing and adjusting social configurations, network members can optimise the value resulting from learning processes. This value can differ between groups depending on their goals. For example, groups that work together cohesively toward a common goal (i.e. demonstrating aspects of a team) often focus on 'practice' and 'domain and value creation' and demonstrate less interest in creating an 'identity' around a common agenda or exploring new areas for learning. In this way, the criteria are not meant to criticise, but rather to support the group to reach its desired social configuration.

One limitation of the study concerns the short period (one year) in which the group was studied. This is a rather short period for teachers to start up and develop effective social learning skills. Therefore, future research should investigate social configurations of multiple teacher networks in different settings over a longer period of time in order to explore long-term effects on teacher learning and 'test' the proposed facilitation guidelines.

Grounded in the DSL Framework and observation criteria as derived from the present study, we aim at operationalising the dimensions into an instrument to analyse the complete lifecycle of teacher networks and to provide guidelines for supporting social learning processes. Although our framework and observation criteria are useful for teacher teams and teacher communities, as well as teacher networks (Vrieling, Van den Beemt, de Laat 2016), the present study establishes that we should be aware of aspirational differences between groups. The group followed in the present study was defined by formal tasks rather than by development and sharing of knowledge. This is a call for educational practice and research to acknowledge a requisite diversity in facilitating professional engagement in social learning and move on from there.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Agterberg, M., B. Van den Hooff, M. Huysman, and M. Soekijad. 2010. "Keeping the Wheels Turning: The Dynamics of Managing Networks of Practice." *Journal of Management Studies* 47 (1): 85–108.

Akkerman, S., C. Petter, and M. De Laat. 2008. "Organising Communities-of- Practice: Facilitating Emergence." *Journal Of Workplace Learning* 20 (6): 383–399.

Barak, J., A. Gidron, and B. Turniansky. 2010. "'Without Stones There Is No Arch': A Study of Professional Development of Teacher Educators as a Team." *Professional Development in Education* 36 (1–2): 275–287.

Bornat, J. 2008. "Biographical Methods." In *The SAGE Handbook of Social Research Methods*, edited by P. Alasuutari, L. Bickman, and J. Brannen, 344–356. London: SAGE.

Büchel, B., and S. Raub. 2002. "Building Knowledge-creating Value Networks." *European Management Journal* 20 (6): 587–596.

Carmichael, P., A. Fox, R. McCormick, R. Procter, and L. Honour. 2006. "Teachers' Networks In and Out of School." *Research Papers in Education* 21 (2): 217–234.

Creswell, J. W. 2007. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. 2nd ed. Thousand Oaks, CA: SAGE.

Darling-Hammond, L., R. C. Wei, A. Andree, N. Richardson, and S. Orphanos. 2009. *Professional Learning in the Learning Profession*. Washington, DC: National Staff Development Council.

De Laat, M., E. Vrieling, and A. Van den Beemt. 2016. "Facilitation of Social Learning in Teacher Education: The 'Dimensions of Social Learning-Framework'." In *Communities of Practice: Facilitating Social Learning in Higher Education*, edited by J. McDonald and A. Cater-Steel, 153–174. Springer.

Dobber, M. 2011. "Collaboration in Groups during Teacher Education." PhD diss., Leiden University.

Doppenberg, J., A. Bakx, and P. Den Brok. 2012. "Collaborative Teacher Learning in Different Primary School Settings." *Teachers and Teaching* 18 (5): 547–566.

Doppenberg, J., P. Den Brok, and A. Bakx. 2013. "Relationships Between Primary School Teachers' Perceived Learning Outcomes of Collaboration, Foci and Learning Activities." *Learning and Individual Differences* 28: 1–8.

Galley, R., G. Conole, and P. Alevizou. 2012. "Community Indicators: A Framework for Observing and Supporting Community Activity on Cloudworks." *Interactive Learning Environments*. doi:10.1080/10494820.2012.680965.

Garrison, D., T. Anderson, and W. Archer. 2000. "Critical Inquiry in a Text-based Environment: Computer Conferencing in Higher Education." *Internet and Higher Education* 2 (2–3): 87–105.

Guskey, T. R. 2002. "Professional Development and Teacher Change." *Teachers and Teaching* 8 (3): 381–391.

Hanraets, I., J. Hulsebosch, and M. De Laat. 2011. "Experiences of Pioneers Facilitating Teacher Networks for Professional Development." *Educational Media International* 48: 85–99.

Haythornthwaite, C., and M. De Laat. 2012. "Social Network Informed Design for Learning with Educational Technology." In *Informed Design of Educational Technologies in Higher Education: Enhanced Learning and Teaching*, edited by A. D. Olofsson and J. O. Lindberg, 352–394. New York: Amazon.

Honold, L. 2006. "Reflective Notes: A Tool for Individual and Team Learning." *Development and Learning in Organizations* 20 (1): 20–22.

Hornby, G. 2009. "The Effectiveness of Cooperative Learning with Trainee Teachers." *Journal of Education for Teaching* 35 (5): 161–168.

Laferrière, T., M. Lamon, and C. K. K. Chan. 2006. "Emerging E-trends and Models in Teacher Education and Professional Development." *Teaching Education* 17 (1): 75–90.

Leh, A., B. Kouba, and D. Davis. 2005. "Twenty-first Century Learning: Communities, Interaction and Ubiquitous Computing." *Educational Media International* 42 (3): 237–250.

Lieberman, A., and D. R. Wood. 2003. *Inside the National Writing Project: Connecting Network Learning and Classroom Teaching*. New York: Teachers College Press.

Meirink, J., J. Imants, P. C. Meijer, and N. Verloop. 2010. "Teacher Learning and Collaboration in Innovative Teams." *Cambridge Journal of Education* 40 (2): 161–181.
Miles, M. B., and A. M. Huberman. 1994. *Qualitative Data Analysis: An Expanded Sourcebook*. 2nd ed. London: SAGE Publications.
Pataraia, N., I. Falconer, A. Margaryan, A. Littlejohn, and S. Fincher. 2014. "Who Do You Talk To About Your Teaching?: Networking Activities among University Teachers." *Fronline Learning Research* 2 (2): 4–14.
Patton, M. Q. 2015. *Qualitative Research & Evaluation Methods*. 4th ed. London/NewDelhi: SAGE.
Pedder, D., and V. D. Opfer. 2013. "Professional Learning Orientations: Patterns of Dissonance and Alignment Between Teachers' Values and Practices." *Research Papers in Education* 28 (5): 539–570.
Schreurs, B., A. Van den Beemt, F. Prinsen, G. Witthaus, G. Conole, and M. De Laat. 2014. "An Investigation into Social Learning Activities by Practitioners in Open Educational Practices." *The International Review of Research in Open and Distance Learning* 15 (4): 1–20.
Stake, R. E. 2005. "Qualitative Case Studies." In *The SAGE Handbook of Qualitative Research*, edited by N. K. Denzin and Y.S. Lincoln, 443–466. 3rd ed. Thousand Oaks, CA: SAGE.
Van den Beemt, A., E. Ketelaar, I. Diepstraten, and M. De Laat. 2018. "Teachers' Motives for Learning in Networks: Costs, Rewards and Community Interest." *Educational Research* 60 (1): 31–46.
Van Emmerik, I. J. H., I. M. Jawahar, B. Schreurs, and N. De Cuyper. 2011. "Social Capital, Team Efficacy and Team Potency: The Mediating Role of Team Learning Behaviors." *Career Development International* 16 (1): 82–99.
Vangrieken, K., F. Dochy, E. Raes, and E. Kyndt. 2014. "Team Entitativety and Teacher Teams in Schools: Towards a Typology." *Frontline Learning Research* 1 (2): 86–98.
Vrieling, E., S. Stijnen, and T. Bastiaens. 2017. "Successful Learning: Balancing Self-Regulation with Instructional Planning." *Teaching in Higher Education*. doi:10.1080/13562517.2017.1414784.
Vrieling, E., A. Van den Beemt, and M. de Laat. 2016. "What's in a Name: Dimensions of Social Learning in Teacher Groups." *Teachers and Teaching: Theory and Practice* 22 (3): 273–292.
Wenger, E. 1998. *Communities of Practice: Learning, Meaning and Identity*. Cambridge: University Press.
Wenger, E., B. Trayner, and M. De Laat. 2011. *Promoting and Assessing Value Creation in Communities and Networks: A Conceptual Framework*. Heerlen: Open University of the Netherlands.
Wheelan, S. A. 2009. "Group Size, Group Development, and Group Productivity." *Small Group Research* 40 (2): 247–262.

Appendix 1. Social learning dimensions, indicators, interview questions, observation criteria and student facilitation guidelines.

Dimension	Indicator	Example interview questions	Observation criteria	Student facilitation guidelines
Practice	Integrated or non-integrated activities	In what way are the experiences in practice communicated within the group?	Agreements about testing group products in classroom practice	Presentation of assignments during group meetings
			Communication about experiences with group products	Completion of a working plan before the start of the group meetings
	Temporarily or permanent activities	In what way are the group activities connected?	Description of short and long term goals	Raising awareness of the importance of social learning for development of social competencies.
			Clarification of the relationship between	

(*Continued*)

Appendix 1. Continued.

Dimension	Indicator	Example interview questions	Observation criteria	Student facilitation guidelines
			group goals and activities	
Domain and value creation	Sharing or broadening/ deepening knowledge and skills	In what way is improvement of the group products visible after the group activities?	Discussion about the group products Feedback opportunities Adjustments of the group products after discussion or feedback Time investment of all members	
	Individual or collective value creation	In what way reflects the agenda of the meetings the group's goals?	Shared agenda at the start Shared agenda during the course of the social learning cycle	
Collective identity	Shared or unshared identity	Which feelings characterize the members' belongingness to the group?	Group activities to enhance the shared identity Feeling of belonging to the group Contact between the group members outside group meetings	
	Strong or weak ties	Which group members are closely connected?	Frequent interaction between the group members Proximal relationships between the group members Reciprocal relationships between the group members Outward focus of the group members	
	Task executors or knowledge workers	In what way results the group's discussion into future ideas?	Long term learning attitude Voluntary participation	
Organization	Directed or self-organized activities	In what way are the group activities organized?	Dispersed leadership Divided roles	Modelling of metacognitive skills
	Local or global activities	What issues are discussed in the group?	Inward focus towards local activities Orientation towards external knowledge sharing	
	Hierarchic or equal relationships	In what way are the relationships between the group members characterized?	Sense of equality between the group members Group activities to enhance equality	Provide a method of enhancing objectivity when students are guided and judged by the same person
	Shared or non-shared interactional norms	In what way is agreement achieved about the procedure to develop upon the group's goals?	Communication about the procedure to achieve shared goals Feeling of safety to interact within the group Openness to different perceptions within the group	